

external access door may be used similar to Figure B-3. Plate nuts and screws are substituted for rivets.

2-15. ACCESS DOOR OVER INTERNAL STRUCTURE. Damage to the wing skin of Group No. I and internal structure, such as a rib or stringer may be repaired by repairing the rib or stringer and then installing the access door. See Figure B-1 for this installation and Paragraph 2-11 for rivet requirements. Trim the skin, leaving sufficient existing skin to allow for the installation of the doubler. Repair the rib or stringer by nesting the repair member on the inside of the damaged member, allowing clearance for installation of the doubler. Install the doubler as shown in Figure B-1. After the doubler is installed, insert a filler between the rib or stringer. Plate nuts and screws are substituted for rivets in attaching the cover plate to the doubler. The plate nuts on the doubler can be installed on the bench. When installing the cover plate, make certain that the screws tying the cover plate to the internal structure are inserted. If desired, an external access door may be used similar to Figure B-3. Plate nuts and screws are substituted for rivets.

2-16. RIVETED SKIN PATCH, CLEAR OF INTERNAL STRUCTURE. Flush skin patches integral with the damaged skin panel may be made by riveting the flush skin patch to the doubler. This type of skin patch may be installed, provided there is an access through which the rivets can be bucked, or cherry rivets (CR-163C) are used. See Figure B-1 and Paragraphs 2-10 thru 2-13. The procedure for making the repair is the same as the installation of an access door as described in Paragraph 2-14, except that rivets are used instead of plate nuts and screws. The external patch shown in Figure B-3 can be used in place of the flush type if desired.

2-17. RIVETED SKIN PATCH OVER INTERNAL STRUCTURE. Flush skin patches integral with the damaged skin panel may be made by riveting the doubler to the existing skin and then riveting the flush skin patch to the doubler and the internal structure. The skin patch is shown in Figure B-1. Rivet requirements are given in Paragraphs 2-10 through 2-13. The procedure is the same as for the installation of an access cover plate as described in Paragraph 2-15, except that rivets are used instead of plate nuts and screws. The external patch shown in Figure B-3 can be used in place of the flush type if desired.

2-18. LEADING EDGE REPAIR, CLEAR OF INTERNAL STRUCTURE. Damage to the leading edge clear of structure should be repaired as shown in Figure B-2 and according to rivet requirements in Paragraph 2-11. The repair can be effected by trimming the skin beyond the damaged area, leaving sufficient skin to allow for the installation of the doubler. If the rivets in the doubler and cover plate are inaccessible for bucking from any other opening, such as the close-out strip noted in Paragraph 2-4, cherry rivets (CR-163C) are used, or the repair may take the form of a flush access door and utilize screws in an access cover plate as called for in Paragraph 2-14.

2-19. LEADING EDGE REPAIR, OVER INTERNAL STRUCTURE. Damage to the leading edge, over internal structure should be repaired as shown in Figure B-2 and according to rivet requirements in Paragraph 2-11. Trim the skin beyond the damaged area, leaving sufficient skin to allow for the installation of the doubler. Trim the rib back beyond the existing skin sufficiently to allow the installation of the doubler. Repair the rib by forming a new rib nose section and making a rib extension splice. The depth of the new

nose section must be such that when the existing skin and skin patch are riveted to the doubler, the skin patch will be flush. It will be necessary to put a filler between the existing rib flange and the rib extension splice member. If the rivets in the doubler and cover plate are inaccessible for bucking, from any other opening, such as the close-out strip noted in Paragraph 2-4, cherry rivets (CR-163C) are used, or the repair may take the form of a flush access door and utilize screws in an access cover plate as called for in Paragraph 2-15.

2-20. DAMAGE REPAIRABLE BY INSERTION. (See Figure 2-3.) Skin damage which exceeds approximately 10 by 12 inches should be repaired by inserting a new skin panel section or complete replacement of the skin panel, whichever is more expedient. Either a chordwise or spanwise splice may be used, but since all skin panels are considerably shorter in a chordwise direction, a chordwise splice entails less work and is recommended for general repair. If the damage is in the bay near the end of the sheet, remove and discard the damaged skin and short end. If the damage is located away from the ends of the sheet, cut the skin on both sides and discard damaged skin. Cut a sheet of 24ST alclad larger than the cutout to accommodate rivets with proper edge distance and of the same thickness as the damaged skin panel. Seams should be lap spliced to the undamaged skin. All spanwise seams should occur at existing spanwise seams using AN470AD5 rivets, picking up the existing rivet holes. However, if the new spanwise seams do not occur at an existing seam, use AN470AD5 rivets at one inch spacing. All spanwise seams must have a minimum edge distance of 5/16 inch. Chordwise seams are made with AN470AD5 rivets and the spacing is permitted to vary between 3/4 inch and one inch; the required number of rivet rows vary, between one and three depending upon the skin panel. (See Figures 2-2 and 2-3.) Skin panels of Type I require a single row of rivets, panels of Type II require two rows of rivets, and panels of Type III require three rows of rivets.

2-21. FRONT BEAM AND CENTER BEAM.

2-22. DESCRIPTION. The front and center beams extend from Station 0 to Station 50. They are fabricated from 24ST alclad sheet. The channel web is .040 thickness on the front beam and .051 thickness on the center beam. Spar cap angles are of .091 and .061 thickness respectively. There are angle stiffeners and flanged lightening holes on the web.

2-23. NEGLIGIBLE DAMAGE. Web damage not exceeding the following limits requires no repair or reinforcement. Smooth dents free of cracks and abrasions and clear of lightening hole flanges may be disregarded, provided the dents do not exceed a depth of 1/8 inch and 1-1/2 inches in diameter and adjacent dents are at a distance of 15 inches. Scratches which do not penetrate beyond the alclad coating may be considered negligible damage.

2-24. DAMAGE TO WEB REPAIRABLE BY PATCHING. Damage to front and center spar webs exceeding negligible damage and 1 1/2 inches clear of lightening holes and spar cap angles may be repaired by a patch plate. Remove damaged area by cutting a circular or rectangular hole; minimum corner radii for rectangular cutout 1/2 inch. Smooth all edges to remove burrs. Cut web patch larger than cutout to accommodate rivets through web with proper edge distance. Front spar web patch is .040 24ST alclad and center spar .051 24ST alclad. Locate position of patch to provide equal overlap at all edges of cutout. Attach web